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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/713,385

**Applicant(s)**

GONDA, RUMI SHERYAR

**Examiner**

KENAN CEHIC

**Art Unit**

2616

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-82 is/are pending in the application.
- 4a) Of the above claim(s) 30-80 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29, 81 and 82 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/808)
- Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claim 1-29, 81,82 drawn to providing Operations, Administration, Maintenance and Provisioning, classified in class 370, subclass 236.2.
  - II. Claim 30-41, 68,68 drawn to failure detection and switching to a backup link, classified in class 370, subclass 217.
  - III. Claim 42-55, 69-75 drawn to updating hardware registers based on a receipt of a control frame, providing maskable interrupts for frames received, invoking a client to process information contained in the frame and execute an action based on the information classified in class 370, subclass 241.1.
  - IV. Claim 56-58, 76-80, drawn to creating and transmitting a control frame based on information from a client request, classified in class 370, subclass 449.
  - V. Claim 59-66, drawn to a data structure with its accompanying fields/headers, classified in class 370, subclass 389.
2. The inventions are distinct, each from the other because of the following reasons:

Inventions I and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination III has separate utility such as updating hardware registers based

on a receipt of a control frame, providing maskable interrupts for frames received, invoking a client to process information contained in the frame and execute an action based on the information. See MPEP § 806.05(d).

The examiner has required restriction between subcombinations usable together. Where applicant elects a subcombination and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

3. Inventions II and I, III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because failure detection and switching to a backup link is not required by the other groups. The subcombination has separate utility such as to detect failure and switching to a backup link.

The examiner has required restriction between combination and subcombination inventions. Where applicant elects a subcombination, and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the

allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

4. Inventions IV and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the to creating and transmitting a control frame based on information from a client request is not required by the combination . The subcombination has separate utility such as to creating and transmitting a control frame based on information from a client request.

The examiner has required restriction between combination and subcombination inventions. Where applicant elects a subcombination, and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

5. Inventions V and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the data structure with its accompanying fields/headers is not required by the other groups. The subcombination has separate utility such as providing a data structure with its accompanying fields/headers.

The examiner has required restriction between combination and subcombination inventions. Where applicant elects a subcombination, and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

6. Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

- (a) the inventions have acquired a separate status in the art in view of their different classification;
- (b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;
- (c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);
- (d) the prior art applicable to one invention would not likely be applicable to another invention;
- (e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

**Applicant is advised that the reply to this requirement to be complete must include (i) an election of an invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.**

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

7. During a telephone conversation with Sean D. Detweiler on 05/02/2008 a provisional election was made without traverse to prosecute the invention of Group I, claim 1-29, 81, 82. Affirmation of this election must be made by applicant in replying to this Office action. Claims 30-80 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-4, 8, 10, 11, 18-22, 26,27, 81, 82 are rejected under 35 U.S.C. 102(e) as being anticipated by Mohan et al (US 2005/0099952).



For claim 1, Mohan discloses A Media Access Control (MAC) hardware device (see fig 1; 16, 18, 20 and 2) for supporting MAC Operations, Administration, Maintenance, and Provisioning (OAMP) functionality (see figs. 1-2, especially 46; fig 4, and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0103 "OAM OpCode...OAM function"), comprising: a MAC OAMP Control sublayer for processing OAMP frames (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software" and section 0136 "OAM client")) and maintaining OAMP state (see section 0122-0130 "availability function....available state....unavailable state....performance parameters....in-service or out-of-service state.."; section 0197 "network element ...state;" and section 0010 "frame loss, frame delay variation...") and a plurality of MAC sublayers for carrying out MAC operations (see section 0027 "operating...MAC..." and fig 2; 22 and section 0078 "MAC...unicast or multicast")

For claim 2, Mohan discloses MAC OAMP Control sublayer additionally performs at least one of creating, and monitoring OAMP frames (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software" and section 0063 "receives this OAM frame...recognizes it and processes it" and section 0059 "sources of OAM frames").

For claim 3, Mohan discloses wherein the MAC OAMP Control sublayer (see fig. 2, 46;

fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software" and section 0136 "OAM client")) provides an architecture for OAMP functionality (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software" and section 0136 "OAM client")) in the form of at least one of, performance evaluation (see section 0106-108 "OAM performance management", section 0131 "measurement mechanisms").

For claim 4, Mohan discloses wherein the MAC OAMP Control sublayer (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software") supports OAMP functionality in the form of at least one of Performance Monitoring (see section 0117-123 "performance parameters...measurement"), Trace Signals, (see section 0085), Service Level Agreements (see section 0108).

For claim 8, Mohan discloses wherein the MAC OAMP Control sublayer monitors OAMP information (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section

0248-249 “OAM function...software” and section 0136 “OAM client”)) for an unterminated layer (see section 0056 “Physical layer”).

For claim 10, Mohan discloses wherein a MAC Control Layer processes optional VLAN tags in control frames (see section 0081-83, 0101-102 “VLAN tag...OAM message”).

For claim 11, Mohan discloses wherein the MAC OAMP Control sublayer (see fig. 2, 46; fig 4, “OAM MAC” and section 0029-33 “OAM”; section 0048-49 “OAM ...MAC” and section 0076-80 “OAM frame....handled....OAM MAC frame” and section 0231-0238, 0245-0247 “OAM frame...MAC” and section 0248-249 “OAM function...software” and section 0136 “OAM client”)) is implemented in the MAC hardware device (see figs 1-2).

For claim 18, Mohan discloses wherein the MAC OAMP Control sublayer (see fig. 2, 46; fig 4, “OAM MAC” and section 0029-33 “OAM”; section 0048-49 “OAM ...MAC” and section 0076-80 “OAM frame....handled....OAM MAC frame” and section 0231-0238, 0245-0247 “OAM frame...MAC” and section 0248-249 “OAM function...software” and section 0136 “OAM client”)) supports OAMP for physical links/line (see section 0056 “Physical layer” and fig 1, 3,4).

For claim 19, Mohan discloses wherein the MAC OAMP Control sublayer (see fig. 2, 46; fig 4, “OAM MAC” and section 0029-33 “OAM”; section 0048-49 “OAM ...MAC” and section 0076-80 “OAM frame....handled....OAM MAC frame” and section 0231-0238, 0245-0247 “OAM frame...MAC” and section 0248-249 “OAM function...software” and section 0136 “OAM client”)) supports OAMP for end to end Network Layer paths (see figs. 3-6 and section 0009 “end-to-end across a network”).

For claim 20, Mohan discloses wherein the plurality of MAC sublayers is

implemented in at least one of an Ethernet Switch device (see fig 2 and section 0026) and an Ethernet MAC device (see fig 1; 16, 18, 20 and fig 2).

For claim 21, Mohan discloses the MAC OAMP Control sublayer processes an Ethernet MAC OAMP control frame (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software" and section 0063 "receives this OAM frame...recognizes it and processes it" and section 0059 "sources of OAM frames").

For claim 22, Mohan discloses wherein the MAC OAMP Control sublayer (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software" and section 0136 "OAM client")) maintains an Ethernet MAC OAMP control state (see section 0122-0130 "availability function....available state....unavailable state....performance parameters....in-service or out-of-service state.."; section 0197 "network element ...state;" and section 0010 "frame loss, frame delay variation...).

For claim 26, Mohan discloses wherein the MAC OAMP Control sublayer responds to an Ethernet MAC OAMP control frame (see section 0062-64 "recognizes it and processes it....forwards the OAM frame....process...terminate" and section 0085 "frame...OAM functions...intrusive loopback..." and section 0238 "response OAM frame").

For claim 27, Mohan discloses wherein the MAC OAMP Control sublayer (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software" and section 0136 "OAM client")) communicates with an Ethernet PHY (see section 0056 "Physical layer").

For claim 81, Mohan discloses wherein the MAC OAMP Control sublayer (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software" and section 0136 "OAM client")) provides architecture for OAMP functionality (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software" and section 0136 "OAM client" and figs. 1-2, especially 46; fig 4, and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0103 "OAM OpCode....OAM function") in the form of at least one of performance evaluation (see section 0106-108 "OAM performance management", section 0131 "measurement mechanisms").

For claim 82, Mohan discloses a method of providing OAMP functionality on an Ethernet protocol network, wherein the MAC OAMP Control sublayer supports OAMP

functionality in the form of at least one of, Performance Monitoring (see section 0106-108 "OAM performance management", section 0131 "measurement mechanisms").

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
9. Claim 1, 81, 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim et al (US 2004/0085905) in view of "OAM&P" for EFM, Muir et al.

For claim 1, Lim disclose A Media Access Control (MAC) hardware device (see fig 1) for supporting MAC Operations (see fig 2; 300,320,330), Administration, Maintenance, and (OAM) functionality (see fig 2; 310), comprising: a MAC OAMP Control sublayer (see fig 2; 310) for processing OAM frames (see section

0012-13 "OAM sublayer transmitting MAC....client data....OAM packet data....OAM PDUs"); and

a plurality of MAC sublayers for carrying out MAC operations (see fig 2; 310,32,330, MAC Client, MAC Control, Media Access Control).

For claim 81, Lim discloses A method of providing OAM functionality (see fig 2; 310) on an Ethernet protocol network (see fig 1-2), wherein the MAC OAM Control sublayer provides architecture for OAMP functionality (see fig 2; 310)

For claim 82, Lim discloses A method of providing OAM functionality (see fig 2; 310) on an Ethernet protocol network (see fig 1-2), wherein the MAC OAM Control sublayer supports OAM functionality (see fig 2; 310)

Lim is silent about:

For claim 1, a provisioning functionality, OAMP state

For claim 81, OAMP in the form of at least one of administration, configuration management, performance evaluation, technical support, and billing.

For claim 82, OAMP in the form of at least one of Alarms, Remote Defects, Automatic Protection Switching, Loopbacks, Performance Monitoring, Trace Signals, Sync Signals, Bit Error Rate Tests, Data Communication Channel, Orderwire, Service Level Agreements, and OAMP operations.

Muir et al from the same field of endeavor discloses the following features:

For claim 1, Muir discloses a provisioning functionality (see page 4-5) OAMP state (see page 4-6 "MAC Control Frame)

For claim 81, Muir discloses OAMP (see page 4-5) in the form of at least one of performance evaluation (see page 4 performance monitoring).

For claim 82, OAMP (see page 4-5) in the form of at least one of Performance Monitoring, and OAMP operations (see page 4-5 performance monitoring).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Lim by using the features, as taught by Muir, in order to provide a common set of OAM&P functionalities such as Loss Signal, Performance monitoring, Loop back, Self Test etc in EoVDSL, EPON, Pt-pt Fiber system using various mechanisms such as IEEE 802.2 LLC XID, SNMP/MIB, MAC control frame (see Muir page 4-6 and 14) and overcoming some of the inherent problems of a shared broadcast topology (see Muir page 14)

10. Claim 5, 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohan et al (US 2005/0099952) in view of Shivnan (US 2006/0227794).

For claim 5, Mohan discloses the claimed invention as described in paragraph 8.

For claim 5, Mohan further discloses wherein the MAC OAMP Control sublayer sublayer (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software" and section 0136 "OAM client")) supports end to end OAMP information sublayer (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM



MAC frame” and section 0231-0238, 0245-0247 “OAM frame...MAC” and section 0248-249 “OAM function...software” and section 0009 “end-to-end across a network”). For claim 12-16, Mohan discloses MAC OAMP Control sublayer (see fig. 2, 46; fig 4, “OAM MAC” and section 0029-33 “OAM”; section 0048-49 “OAM ...MAC” and section 0076-80 “OAM frame....handled....OAM MAC frame” and section 0231-0238, 0245-0247 “OAM frame...MAC” and section 0248-249 “OAM function...software” and section 0136 “OAM client”)) supports OAMP for a layer (see fig. 2, 46; fig 4, “OAM MAC” and section 0029-33 “OAM”; section 0048-49 “OAM ...MAC” and section 0076-80 “OAM frame....handled....OAM MAC frame” and section 0231-0238, 0245-0247 “OAM frame...MAC” and section 0248-249 “OAM function...software”).

For claim 13, Mohan discloses MAC OAMP Control sublayer (see fig. 2, 46; fig 4, “OAM MAC” and section 0029-33 “OAM”; section 0048-49 “OAM ...MAC” and section 0076-80 “OAM frame....handled....OAM MAC frame” and section 0231-0238, 0245-0247 “OAM frame...MAC” and section 0248-249 “OAM function...software” and section 0136 “OAM client”)) supports OAMP for a layer (see fig. 2, 46; fig 4, “OAM MAC” and section 0029-33 “OAM”; section 0048-49 “OAM ...MAC” and section 0076-80 “OAM frame....handled....OAM MAC frame” and section 0231-0238, 0245-0247 “OAM frame...MAC” and section 0248-249 “OAM function...software” and section 0136 “OAM client”)) supports OAMP for a Physical layer (see section 0056 “Physical layer”).

Mohan is silent about:

For claim 5, Wave layer, a Section layer, a Line layer, and a Path layer.

For claim 12, the wave layer.

For claim 14, the section layer.

For claim 15, the line layer.

For claim 16, the path layer.

Shivian from the same or similar field of endeavor discloses a communication network with the following features:

For claim 5, Shivian discloses, a Section layer, a Line layer, and a Path layer (see section 0047), wave layer (see section 0005 “DWDM” and section 0012 “optical communication link...physical layer...receiver/transmitter layer” and claim 24 “physical layer...freespace optical communication” and claim 51 “optical network layer”).

For claim 12, Shivian discloses the wave layer (see section 0047), wave layer (see section 0005 “DWDM” and section 0012 “optical communication link...physical layer...receiver/transmitter layer” and claim 24 “physical layer...freespace optical communication” and claim 51 “optical network layer”).

For claim 14, Shivian discloses the section layer (see section 0047), wave layer (see section 0005 “DWDM” and section 0012 “optical communication link...physical layer...receiver/transmitter layer” and claim 24 “physical layer...freespace optical communication” and claim 51 “optical network layer”).

For claim 15, Shivian discloses the line layer (see section 0047), wave layer (see section 0005 “DWDM” and section 0012 “optical communication link...physical layer...receiver/transmitter layer” and claim 24 “physical layer...freespace optical communication” and claim 51 “optical network layer”).

For claim 16, Shivian discloses the path layer (see section 0047), wave layer (see section 0005 “DWDM” and section 0012 “optical communication link...physical layer...receiver/transmitter layer” and claim 24 “physical layer...freespace optical communication” and claim 51 “optical network layer”).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Mohan by using the features, as taught by Shivian, in order to provide “control processor includes a link verification module for monitoring and verifying the status of a communication link between nodes in the network” and to solve the “last mile” problem (see Shivian sections 0005-11).

11. Claim 6, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohan et al (US 2005/0099952) in view of Abe (US 2004/0017965).

For claim 6, 7 Mohan discloses the claimed invention as described in paragraph 8.

For claim 6, Mohan further discloses wherein the MAC OAMP Control sublayer (see fig. 2, 46; fig 4, “OAM MAC” and section 0029-33 “OAM”; section 0048-49 “OAM ...MAC” and section 0076-80 “OAM frame....handled....OAM MAC frame” and section 0231-0238, 0245-0247 “OAM frame...MAC” and section 0248-249 “OAM function...software” and section 0136 “OAM client”)) is based on Network Equipment (NE) functionality (see fig 3; A, F) in an Ethernet Network (see fig 1; 12 and fig 3)

For claim 7, Mohan further discloses the MAC OAMP Control sublayer (see fig. 2, 46; fig 4, “OAM MAC” and section 0029-33 “OAM”; section 0048-49 “OAM ...MAC” and section 0076-80 “OAM frame....handled....OAM MAC frame” and section 0231-0238, 0245-0247 “OAM frame...MAC” and section 0248-249 “OAM function...software” and

section 0136 "OAM client")) processes OAMP information (see section 0122-0130 "availability function....available state....unavailable state....performance parameters....in-service or out-of-service state.."; section 0197 "network element ...state;" and section 0010 "frame loss, frame delay variation...") for a layer terminated by the MAC OAMP control sublayer (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software").

Mohan is silent about:

For claim 6, configured to terminate OAMP information for at least one of, a Physical layer.

For claim 7, and all layers below the terminated layer.

Abe from the same or similar field of endeavor discloses a communication network with the following features:

For claim 6, Abe discloses configured to terminate OAMP information for at least one of, a Physical layer (see fig 2 ; OAM Sublayer, Physical layer).

For claim 7, and all layers below the terminated layer (see fig 2; OAM sublayer, PCS, PMA,PMD).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Mohan by using the features, as taught by Abe, in order to "eliminate superfluous alarms sent from the in-station MC to the OpS. " (see Abe sections 0027-36).

12. Claim 9, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohan et al (US 2005/0099952) in view of Lim et al (US 2004/0085905).

For claim 9, Mohan discloses the claimed invention as described in paragraph 8.

For claim 25, Mohan discloses wherein the MAC OAMP Control sublayer (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software" and section 0136 "OAM client")) and Ethernet MAC OAMP Client (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software" and section 0136 "OAM client"))).

Mohan is silent about:

For claim 9, MAC sublayers further comprises at least one MAC Control sublayer for generating control frames.

For claim 25, that a mac sublayer communicates with a mac client.

Lim from the same or similar field of endeavor discloses a communication network with the following features:

For claim 9, Lim MAC sublayers further comprises at least one MAC Control sublayer (see fig 2; 310-340) for generating control frames (see section 0013 "frames...OAM PDUs").

For claim 25, Lim discloses that a mac sublayer communicates with a mac client (see fig 2; 300-340; MAC service interface).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Mohan by using the features, as taught by Lim, in order to provide a “OAM packet data transmission method that, by immediately transmitting generated OAM PDUs, assures efficient network management” (see section Lim sections 0007-14)

13. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mohan et al (US 2005/0099952) in view of Wils et al (US 2004/0022185).

For claim 17, Moha discloses the claimed invention as described in paragraph 8.

For claim 17, Mohan further discloses wherein the MAC OAMP Control sublayer supports OAMP (see fig. 2, 46; fig 4, “OAM MAC” and section 0029-33 “OAM”; section 0048-49 “OAM ...MAC” and section 0076-80 “OAM frame....handled....OAM MAC frame” and section 0231-0238, 0245-0247 “OAM frame...MAC” and section 0248-249 “OAM function...software” and section 0136 “OAM client”)) for links (see fig 1 and section 0009 “link”).

Moha is silent about:

For claim 17, logical links/line formed by a Link Aggregation sublayer

Wils from the same or similar field of endeavor discloses a communication network with the following features:

For claim 17, Wils discloses logical links/line formed by a Link Aggregation sublayer (see section 0016,19 “link aggregation sublayer”).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Mohan by using the features, as taught by Wils, in order to provide “for up to as many communication paths between the cluster members (aggregation member devices) as there are aggregate links in a trunk switch cluster or aggregated switch set “ and to improve reliability and throughput (see Wils sections 0007-16)

14. Claim 23, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohan et al (US 2005/0099952) in view of Jacobson et al (US 6,381,250).

For claim 23 and 24, Mohan discloses the claimed invention as described in paragraph 8. For claim 23 and 24, Mohan further discloses MAC OAMP Control sublayer (see fig. 2, 46; fig 4, “OAM MAC” and section 0029-33 “OAM”; section 0048-49 “OAM ...MAC” and section 0076-80 “OAM frame....handled....OAM MAC frame” and section 0231-0238, 0245-0247 “OAM frame...MAC” and section 0248-249 “OAM function...software” and section 0136 “OAM client”)) and an OAM client( section 0136 “OAM client”) and a frame detected (see fig. 2, 46; fig 4, “OAM MAC” and section 0029-33 “OAM”; section 0048-49 “OAM ...MAC” and section 0076-80 “OAM frame....handled....OAM MAC frame” and section 0231-0238, 0245-0247 “OAM frame...MAC” and section 0248-249 “OAM function...software” and section 0136 “OAM client”)).

For claim 24, Mohan discloses an OAMP state change (see section 0122

“available...unavailable” and section 0128 “state”).

Mohan is silent about:

For claim 23, wherein the generates an interrupt when an command is detected to invoke a program.

For claim 24, an interrupt when an state change is detected to invoke a program.

Jacobson from the same field of endeavor discloses a system with the following features:

For claim 23, Jacobson discloses wherein the generates an interrupt when an command is detected to invoke a program (see col 17 lines 2-25 “command...interrupt then invokes the program to service the data condition”).

For claim 24, Jacobson discloses an interrupt when an state change is detected to invoke a program (see col 17 lines 2-25 “command...interrupt then invokes the program to service the data condition”).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Mohan by using the features, as taught by Jacobson, in order to provide a mechanism which will signal a need for (immediate) attention to a program/processor in order to handle time critical situations.

15. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mohan et al (US 2005/0099952) in view of Krause et al (US 5,590,285).

For claim 28, Mohan discloses the claimed invention as described in paragraph 8.



For claim , Mohan further discloses wherein the MAC OAMP Control sublayer (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software" and section 0136 "OAM client")) and Ethernet MAC OAMP control frame (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software" and section 0136 "OAM client")) .

Mohan is silent about:

For claim 28, a layer operates as a pass through for a received.

Krause from the same or similar field of endeavor discloses a communication network with the following features:

For claim 28, Krause discloses a layer operates as a pass through for a received (see claim col 7 lines 54-67 "MAC....pass a packet to the upper layers" ).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Mohan by using the features, as taught by Krause, in order to provide multiple virtual DLL interfaces with increase performance of functions of a computers (see Krause col 4).

16. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mohan et al (US 2005/0099952) in view of Sorenson et al (US 2008/0095083).

For claim 29, Mohan discloses the claimed invention as described in paragraph 8.

For claim 29, Mohan further discloses the MAC OAMP Control sublayer (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software" and section 0136 "OAM client")); Ethernet MAC OAMP control frame (see fig. 2, 46; fig 4, "OAM MAC" and section 0029-33 "OAM"; section 0048-49 "OAM ...MAC" and section 0076-80 "OAM frame....handled....OAM MAC frame" and section 0231-0238, 0245-0247 "OAM frame...MAC" and section 0248-249 "OAM function...software" and section 0136 "OAM client"))).

Mohan is silent about:

For claim 29, retransmits after modifying a received frame.

Sorenson from the same or similar field of endeavor discloses a communication network with the following features:

For claim 29, Sorenson discloses retransmits after modifying a received frame (See section 0041 "changing the source and or destination data link...forwarded").

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Mohan by using the features, as taught by Sorenson, in order to provide a way to change the path of data when rerouting is needed in case of congestion or link failure.

### ***Conclusion***

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17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KENAN CEHIC whose telephone number is (571)270-3120.

The examiner can normally be reached on Monday through Friday 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, KWANG BIN YAO can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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